Space Weather Forecast

Issued on Friday, 10 March 2023 at 12:13 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated Moderate class flares (R1-R2/Minor-Moderate radio blackouts) throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with occasional Common-class flares. The largest from a moderately large bipolar region in the southwest quadrant. The other region of most note is a moderately large bipolar region in the northwest quadrant, but which has shown recent decay in its trailer spots. There are currently 10 numbered sunspots on the visible disc, with the remaining regions generally small, magnetically simple, and either stable or slowly evolving.

A farsided halo CME (coronal mass ejection) observed leaving the Sun during 09 Mar has been analysed, and as expected is directed well away from the Earth. No other Earth directed CMEs have been observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind speed has slowly declined from slightly elevated levels to near background levels. Total magnetic field strength was weak, with a brief moderate period during the morning UTC of 10th. This may be due to a weak passing CME. The north-south component also varied weakly. Geomagnetic activity was mainly Quiet to Unsettled.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Low to Moderate due to two moderately large regions on the visible disc. There is a slight chance of High activity.

Solar Wind / Geomagnetic Activity: No CMEs are forecast to affect the Earth in the next four days. Solar winds are expected to continue near background levels over the next few days, with no further fast winds forecast. Geomagnetic activity is expected to be mostly Quiet to Unsettled (Kp 1-3) throughout the period.

Energetic Particles / Solar Radiation: Solar radiation levels are most likely to stay at background levels, but with a slight chance of reaching the S1/Minor Storm threshold or greater should any larger flares occur.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	50	50	50
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	15	15	15
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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